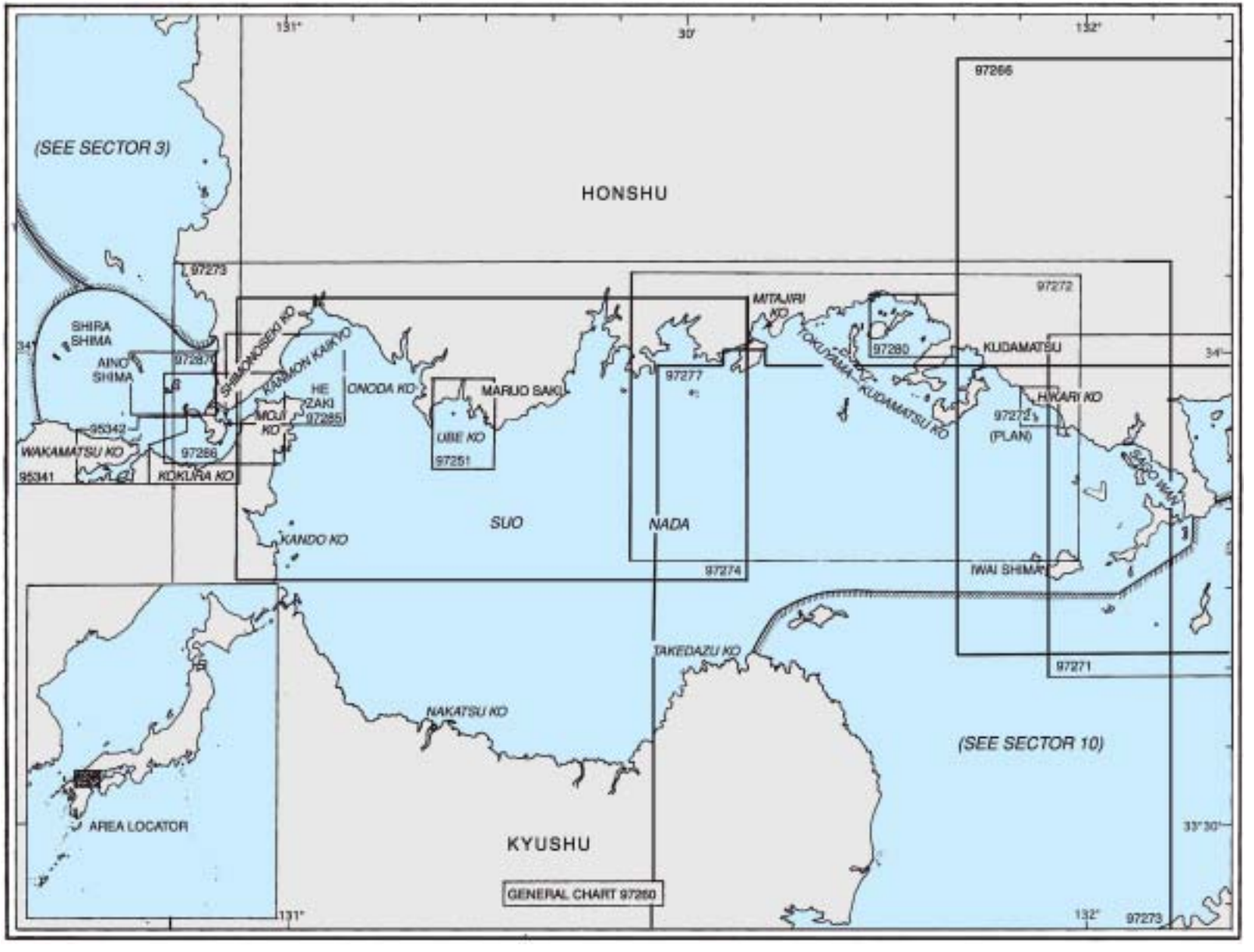
Click on "See Sector" to be hotlinked to that Sector.



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SECTOR 11

SUO NADA AND KANMON KAIKYO

Plan.—This sector discusses Suo Nada and Kanmon Kaikyo, the W entrance of Naikai. The descriptive sequence for Suo Nada is generally E to W, with the N coast described first, followed by the S coast. Kanmon Kaikyo is described from W to E.

General Remarks

11.1 Suo Nada (33˚50'N., 131˚31'E.), the W section of the Naikai, is bounded on the N by the coast of Honshu and on the S and W by the coast of Kyushu. On the E, it is separated from Iyo Nada by Naga Shima, Iwai Shima, and Hime Shima. On the W it is separated from the Sea of Japan by Kanmon Kaikyo. Suo Nada is about 50 miles long, E and W, and about 20 miles wide.

Tides—Currents.—In general, the currents in Suo Nada flow E during the ebb tide and W during the flood. It alternates 40 minutes after HW and LW. The velocity and direction of the current may sometimes vary considerably, but is generally less than 1.5 knots.

Caution.—The depths of Suo Nada are about 51m in its E entrance and gradually decrease toward the W, where depths of less than 11m lie within 7 miles of the shore. Several dangerous wrecks lie sunk on or near the main navigational track and can best be seen on the charts. Care should be taken with regards to submarine cables which are laid throughout the area.

Suo Nada—North Coast and Off-lying Islands

11.2 Naga Shima (33˚48'N., 132˚05'E.) is about 5 miles long and irregular in shape. Its NW and SE sides are washed by the waters of Suo Nada and Iyo Nada, respectively. The SW part of the island is joined to the rest of the island by an isthmus.

Anchorage.—Vessels with local knowledge can obtain anchorage, sheltered from W winds, either off Shida, a village on the SE coast, or in a bight off Kamai, a village about 1.8 miles further NE.

Amata-jima lies about 0.4 mile S of the S extremity of Naga Shima. Passage, between the two islands, is dangerous because of sunken rocks. A light is shown from the S extremity of Amata-jima. Usu Se are the two SW rocks of several rocks that lie on foul ground extending SW from the SW side of Amata-jima.

Hanaguri To (33˚47'N., 132˚02'E.) is an islet that lies close off the SW end of Naga Shima on the E side of Hanaguri Seto. The islet is wooded and cliffy on all sides. A light is shown from the W extremity of the island.

Iwai-jima lies on the N side of the E entrance to Suo Nada, about 1.5 miles W of Hanaguri To Light. The island is mountainous and forms a tableland of nearly uniform height. Rocky shoals lie within 0.15 mile of its shores. Eboshi Se, three above-water rocks, lie at the outer end of a reef which extends about 0.2 mile off the SE extremity of the island. A lighted buoy marks the E end of Eboshi Se. The islets of Ko-iwai-jima and Ko-jima lie off the W side of Iwai-jima.

11.3 Kaminoseki Seto (33˚50'N., 132˚07'E.) is the strait between the NE end of Naga Shima and the SW extremity of Murotsu Hanto. The narrowest part of the strait is about 0.2 mile long, in an E and W direction, with depths of 8.9 to 11.9m. The passage, which does not exceed 90m in width, is reduced to a navigable channel of about 46m and a depth of 4.9m by the shoals on each side. Both sides of the strait are marked by navigation lights. Yoko Shima lies about 0.5 mile S of the entrance to Kaminoseki Seto.

Kaminoseki Seto is spanned by the Kaminoseki Bridge, with a vertical clearance of about 23m. A green fixed light marks the center of the bridge and a red fixed light marks each side of the clear passage.

Sago-jima lies about 0.8 mile NNW of Koyamando Hana, the N extremity of Naga Shima. The island forms the N side of Zoshi Seto, which leads into Sago Wan. Ikada Se, showing a light, is a black rock lying on a reef that extends 0.3 mile SW from the SW point of Sago-jima.

Kame Iwa (33˚52'N., 132˚05'E.) consists of three heads and lies on the S side of Zoshi Seto, about 0.3 mile NE of Kayomano Hana. A light is shown from the S part of Kame Iwa.

Ushi-jima lies about 2 miles WSW of Sago-jima and is triangular in shape, with four summits of nearly equal height. A light is shown from Kaitsuke Hana, the N extremity of the island, and from a breakwater on the NW side of the island.

Four submarine cables, one of which is a power cable, are laid from the bay on the NW side of Ushi Shima to the mainland N.

11.4 O Shima (33˚52'N., 131˚59'E.), located about 1 mile NW of Ushi-jima, consists of two islets joined by drying rocks. The S islet is the larger of the two.

Hirao Ko at the NW end of Sago Wan, is a long narrow bight which makes a tortuous indentation to the NE, and has a width of slightly more than 0.2 mile. The bight is protected from the S by Atada Shima. In the S part of Hirao Ko the depths are 5.5 to 10.1m, mud.

Sagowan Hakuchi, on the S side of the peninsula, affords anchorage, in depths from 7 to 13m, mud. There are a number of mooring buoys in the N part of this anchorage; a submarine cable is laid from the N end of Uma Shima to the W end of the peninsula.

Murozumi Hanto (33˚55'N., 131˚58'E.) lies about 3 miles NNW of O Shima. The S face of the peninsula is cliffy and conspicuous; the E side forms a bay, which is open to the SE. The town of Murozumi is situated at the head of the bay. A light is shown from the W entrance point to the bay.

Hikari Ko, located about 3 miles NW of Murozumi Hanto, is a narrow basin on the SE side of Shimada Gawa. The basin is about 700m long and from 90 to 140m wide. A light is shown

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from the head of a breakwater forming the W side of the entrance.

A jetty berth, with a dolphin off each end and a depth of 11.3m, lies alongside the SE side of the entrance to the basin. A lighted buoy is moored close S of the S end of the basin.

O-Mizunase-jima (33˚56'N., 131˚56'E.) is located about 1 mile S of Hikari Ko, and consists of two hills of equal height. Ko-minase-jima, two small islets, lie close NW of O-Mizunase-jima. The NW end of O-Mizunase-jima and the S islet of Ko-minase-jima are connected by a breakwater. A light is shown from the S point of O-Mizunase-jima.

11.5 No Shima (33˚56'N., 131˚42'E.) lies about 3 miles SW of the entrance of Tokuyama Wan and exhibits a light at its S end. A light is also shown from a breakwater on the NW side of the island. Hira Shima and Oki Shima, two islets, lie N of No Shima. These three islets are joined by rocky ledges and reefs. Omo Ze, a shoal which dries, lies about 0.6 mile SW of the S extremity of No Shima. A light is shown from Omo Ze. A submarine pipeline and three cables lead NNW from No Shima to the shore of mainland; another submarine cable leads NNE to Uma Shima.

Uma Shima and Otsu Shima are connected by a low isthmus. Miyaichigo Shima and Itsutsu Shima, small islets, lie close off the W side of Otsu Shima. A cable is laid from a position about 1 mile E of Itsutsu Shima, NW to the mainland.

A conspicuous radio mast is situated at Marusyama Saki on the N headland of Otsu Shima. A light is shown from the breakwater head at Hon Ura, a small harbor on the W side of Otsu Shima.

Tokuyama-Kudamatsu Ko

11.6 Tokuyama-Kudamatsu Ko (34˚00'N., 131˚48'E.) is an important industrial and harbor complex. The extent of the harbor is divided into four areas. Area No. 1 lies off the city of Tokuyama at the head of Tokuyama Wan, and includes the E part of Senshima Suido; Area No. 2 lies off the city of Kudamatsu at the head of Kasado Wan; Area No. 3 consists of the areas to seaward of Area No. 1 and Area No. 2 , bounded SE by Kasado Shima, SW and W by the harbor limit, and N by the coastline E of Shinoki Hana; Area No. 4 lies E of Kasado Shima, between the harbor limits and the coast.

Winds—Weather.—During typhoons in summer and autumn, the SE wind is the strongest, in winter the West Monsoon is strongest. Surges and waves enter Tokuyama Wan when strong SSE winds blow during typhoons. Wind from any other direction has little effect on vessels at anchor in the harbor, which is protected by the islands and peninsula.

Tides—Currents.—At the entrance to Tokuyama Wan, the flood current flows W, and the ebb flows E, with a rate which may reach more than 1 knot.

In the vicinity of the entrance to Kasado Wan the flood current flows WNW, and the ebb flows SSE, with a rate which may reach 1 knot.

11.7 Kasado Wan (33˚58'N., 131˚50'E.) lies between the SE side of O Shima and the NW side of Kasado Shima. The W approach to Kasado Wan is divided into two deep channels by islets, and rocks and reefs, which lie W of the entrance to the bay. The N channel has depths of 12.8 to 21.9m, and the S channel 14.6 to 27m. Miyano Seto, between the N end of Kasado Shima and Miyanosu Hana, is a deep-water channel, 0.1 mile wide with a depth of 12.8m.

Kudamatsu (34˚00'N., 131˚52'E.) (World Port Index No. 61675) stands at the head of Kasado Wan, and contains a number of deep-water berths and anchorage space. An oil berth, E of Miyanosu Hana, can accommodate large tankers with a draft of up to 11.9m.

Anchorage.—Vessels can anchor in Kasado Wan, as convenient, in depths from 11 to 14.6m, mud.

Pilotage.—Pilotage is not compulsory, but is advisable for those without local knowledge; it is available during daylight hours only. Pilot boards in the quarantine anchorage.

Tokuyama Wan

11.8 Tokuyama Wan (34˚02'N., 131˚49'E.) lies between O Shima and Sukumo-jima on the SE, Otsu Shima on the W, and Kurokami-jima and Sen-jima on the NW.

Tides—Currents.—On a rising tide, the current divides after entering the channel, one branch flows N through Nakayano Seto then NE, and the other branch flows W along the coast. The two opposing flows meet N of Kurokami Shima where the surface current diminishes.

Depths—Limitations.—The main deep-water channel into Tokuyama Wan from the S lies between Su Shima and Iwa Shima, and is 0.5 mile wide and with a least depth of 25m. The spring rate of flow at the entrance is 1.25 knots, but the rate in the middle of the bay reduces to 0.25 knot.

Idemitsu Sea Berth, with nine mooring buoys, is situated about 1 mile NE of the entrance channel to the bay. A submarine pipeline connects between the sea berth and the coast of Oshima Hanto, and a special mark buoy is moored near the seaward end of the pipeline. The sea berth has a depth for vessels with a draft of 19.5m, and it is equipped with a submersible oil boom, and can accommodate vessels between 70,000 and 275,000 dwt, with maximum length of 340m.

Nishiga Mori Jetty lies about 1.3 miles E of Iwa Shima, which projects from the shore, and has an 11.9m depth alongside. Tank depot and oil installation occupy the NW side of Osima Hanto. Jetty No. 2 through Jetty No. 7 are situated along the NW coast, with mooring dolphins off Jetty No. 2, Jetty No. 3, Jetty No. 4, and Jetty No. 7. Jetty No. 3 has a depth of 11.7m alongside; Jetty No. 5 has a depth of 12.3m along-side.

Aspect.—The S entrance to the bay lies between Iwa Shima, which shows a light, and Su Shima, about 0.8 mile to the W. Senshima Suido, the N channel into the bay, lies between the N side of Sen Shima and the mainland N. Vessels also use Nakatanino Seto, between the N end of Otsu Shima and the W side of Kurokami-jima.

Pilotage.—Pilotage is not compulsory; however, an Inland Sea Pilot or the harbor pilot can be requested with a message to Anjeir Moji, 24 hours in advance. Sea pilots board ship 3 miles S of **Seki Saki Light** (33˚13'N., 131˚54'E.). Harbor pilots board at the quarantine anchorage area (34˚01'N., 131˚46'E.), in a depth of 11m. Pilots board deeper draft vessels 2 miles SW of the anchorage.

Anchorage.—Anchorage can be taken in almost any part of Tokuyama Wan, in depths of 10 to 18.3m; however, submarine pipelines and cables are to be avoided.

Caution.—Two submarine oil pipelines, marked by yellow buoys, are laid NE from the N of oil installation to the oil refinery in Tokuyama.

Tokuyama (34˚02'N., 131˚49'E.)

World Port Index No. 61680

11.9 Tokuyama lies at the head of Tokuyama Wan; the oil installation occupies the NE side of the bay, N of Osima Hanto. It consists of a large harbor with berthing facilities for vessels of up to 40,000 grt and a deep draft of 11.9m. There are also a number of buoy berths for vessels of up to 275,000 dwt.

Pilotage is not compulsory, but pilots are available and board at the quarantine station when requested.

Mitajiri Ko (34˚01'N., 131˚36'E.) lies about 9 miles W of Tokuyama-Kudamatsu Ko, and is entered between Edomari Hanto and Muko Shima. The harbor is divided into two areas, Mitajiri Ko and Nakanoseki Ko. The channel leading into the port is about 122m wide and 7m deep. The channel is marked by lighted buoys. A berth, with depths of 3.7 to 7m alongside, lies on the W side of the channel.

There is a wharf, with depths of 5.7 to 7.8m, across from Heiwa Wharf.

Muko Shima forms the E side of Nakanoseki Ko and the SW side of Mitajiri Ko. Tazuno Hana, its S extremity, lies about 1.5 miles SE of Nishidomari Saki, and in its center, Nishiki Yama, attains a height of 354m and is a good landmark. Kuro Se, a rock marked by a lighted buoy, lies 0.2 mile off the SW extremity of Muko Shima.

Saba Shima (33˚58'N., 131˚31'E.), 32m high, is thickly covered with trees and lies about 2.5 miles SW of Kuro Se. A shoal bank, with two above-water rocks, extends almost 0.5 mile to the SE. A light is shown on the W side of the bank, close to the island.

Omi Wan is available to small vessels only, the bay being mostly shoal. Its shores are mainly sandy beaches fringed with a sandbank that dries. The bay lies about 3 miles NNW of Saba Shima. A number of navigational lights mark the shores of the bay.

Aio Wan (34˚00'N., 131˚25'E.), a shallow bay used by small craft, is located about 3 miles W of Omi Wan. A boat basin lies at the head of the bay and is protected by breakwaters. Take Shima lies in the S approach to Aio Wan. Iruka Se, marked by a lighted buoy, is located 0.75 mile SSW of Take Shima.

The bay close W of Aio Wan is encumbered with numerous islets and rocks and is shoal. The shores of the bay are fringed with sandbanks that dry. The village of Azisu stands on the W side of the bay, and is protected by a breakwater.

Between **Maruo Saki** (33˚58'N., 131˚21'E.) and Ube Ko, about 7 miles WSW, the coast is backed by low hills with no conspicuous features.

Seaweed nurseries, containing steel piles, extend up to 0.2 mile offshore for 1 mile W of the entrance to Ube Ko.

Ube Ko (33˚56'N., 131˚14'E.)

World Port Index No. 61690

11.10 Ube Ko occupies the whole of a bight between Motoyama Misaki and Ube Misaki. The port consists of three harbors, namely, East Harbor, Main Harbor, and West Harbor. The harbors are made up mainly of reclaimed land, constructed from coal slag.

A bridge, with a vertical clearance of about 25m, spans the entrance to West Harbor. A fixed white light on the bridge marks the mid-channel approach which leads into West Harbor. The channel is also marked by fixed red and green lights on each side.

Winds—Weather.—The climate is generally mild and as a rule the wind direction is frequently E. During the winter, there are frequently W or NW winds, but there is rarely wind from the SE.

Tides—Currents.—The seas are generally low and the adverse effects of tidal currents and drifting silt are not to be seen, but there is a danger of abnormal high tides caused by typhoons. It is necessary to maintain course at the entrance to the various fairways as the tidal currents may be strong across the fairways.

Depths—Limitations.—The principal berths have accommodations for vessels varying from a 7.5m draft up to 13.2m at Wharf No. 6, which has the capacity to handle vessels up to 200m loa.

Seibusekiyu Sea Berth consists of a large mooring buoy equipped with a light, a horn, and a radar reflector. The berthing capacity is up to 250,000 dwt, in a depth of 20m. The buoy is situated about 6 miles SSE of Motoyama Misaki.

Aspect.—Motoyama Misaki is a salient point terminating in a cliff. Three chimneys at a power station about 2 miles NE of Motoyama Misaki are conspicuous.

Shimofuriga Daki, located about 5.5 miles N of Ube Misaki, appears as three peaks and is conspicuous because of the surrounding low land.

Pilotage.—Pilotage is not compulsory, but is recommended. Inland sea pilots are available at Seisaki or Hesaki. Pilots are available during daylight hours only and can be contacted on VHF channels 12 and 16. Harbor pilots board at the quarantine anchorage, which lies about 1.5 miles WSW of the light tower on Montoyamano Su. Pilots for Seibusekiyu Sea Berth board about 0.3 mile NE of the sea berth.

Anchorage.—There is anchorage for four ships, two of 500 grt and two of 1,000 grt, in depths of 3.5 to 7.3m.

A quarantine anchorage lies 3 miles SE of Motoyama Misaki. Vessels also anchor SE of the sea berth buoy.

11.11 Between Motoyama Misaki and the entrance to Kanmon Kaikyo, about 10 miles WNW, the coast forms a large shallow bight at the head of which is a drying sandbank that dries out about 1 mile in places.

Onoda Ko (33˚58'N., 131˚10'E.), located about 2.5 miles N of Motoyama Misaki, extends about 2 miles N from the foothills of Ryuo Zan, and consists of a harbor enclosed by breakwaters. A light is shown at the head of the N breakwater.

Depths—Limitations.—The harbor has depths of 4 to 7m. It is approached by a channel, marked by lighted buoys, which

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has depths of 4.9 to 7m. Caution is necessary because there are places on both sides of the channel where the water rapidly becomes shallow. Large vessels normally wait for high tide.

Aspect.—Two chimneys E of the N breakwater, and four chimneys S of the S breakwater are conspicuous.

Suo Nada—South Coast—Takedazu Ko to Kanda Ko

11.12 Takedazu Ko (33˚41'N., 131˚34'E.), a small fishing harbor, lies between two cliffy points, Biwa Saki, on the W, and Kame Saki on the E. A small basin protected by breakwaters is located on the W side of this shallow bay.

Naga Saki is a salient cliffy point, covered with trees, and located about 2 miles W of Biwa Saki. Near the extremity of the point is a rock covered with a few trees, and resembles a boat under sail when viewed from the E or W. A light is shown from the point.

Takada Ko (33˚35'N., 131˚26'E.), located about 7.8 miles SW of Naga Saki, is a small harbor between a curved breakwater and the entrance of Katura Kawa. The town of Takada is about 1 mile S of the entrance to the river. A light is shown from the head of the breakwater.

Nagasu Ko, a small port, is located about 3 miles W of Takada Ko. The town stands on the E side of the mouth of the Yakkan Kawa. The port is protected by a breakwater from which a light is shown.

Nakatsu Ko (33˚36'N., 131˚12'E.), at the mouth of Yamakuni Kawa, lies about 9.5 miles WNW of Nagasu Ko. The river has two entrances, the W entrance has depths of 1.5 to 2.1m, and is the deeper of the two. The W entrance is protected by training walls, which are covered at HW. Entrance buoys have been established at Nakatsu Ko. Two chimneys on the right bank of the river are conspicuous. Another chimney, about 48m high, stands on the foreshore 1.5 miles SE of the mouth of Yamakuni Kawa.

A light is shown from a white tower, 7m high, in this vicinity.

Unoshima Ko, a harbor protected by breakwaters, is available to small vessels with local knowledge, and lies about 3 miles W of Nakatsu Ko. A detached breakwater, exhibiting a yellow light at its W end, lies about 230m N of the quayed breakwater on the E side of the harbor entrance. An approach channel, 1.25 miles long and dredged to 7.5m, leads S from 230m outside the harbor limit to the harbor entrance.

A pier, with dolphins on each side, lies on the NE corner of reclaimed land, 0.2 mile WNW of the W breakwater. There are depths of 6.1 to 7m alongside the pier. A lighted buoy is moored 1.5 miles NNE of the pier; lighted buoys mark the channel to the pier.

Mino Shima (33˚44'N., 131˚01'E.), 60m high and wooded, lies about 9 miles NW of Unoshima Ko and lies on a drying sandbank that extends from the shore to which the latter is joined by a causeway. A signal station is situated at the N end of Mino Shima.

Kanda Ko (33˚47'N., 131˚01'E.)

World Port Index No. 62145

11.13 Kanda Ko is an open harbor located about 10 miles S of the E entrance to Kanmon Kaikyo. The port is used primarily for the shipment of coal and cement. The harbor is protected by Kono Shima and breakwaters. A light is shown at the head of both the N and E breakwaters.

Winds—Weather.—Throughout the year, the most frequent wind is from the E. During strong E winds, the sea enters the port. From autumn through winter there are frequent W and NW winds, but they have no great effect on the harbor because of the mountains to the W of the port. In spring and winter, fog may effect visibility, but is not persistent.

Tides—Currents.—The tidal current flows in an E and W direction. The rate of the current in the harbor entrance is about 0.5 knot.

Depths—Limitations.—A buoyed channel, dredged to 10m, leads to the harbor entrance. A rectangular area, marked by lights, was being reclaimed N of the entrance channel. A new buoyed channel, dredged to 7.5m, leads, from a position between Lighted Buoy No. 7 and Lighted Buoy No. 8 and the breakwater heads in the main entrance channel, SE of Kono Shima to the S basin. To the S of this channel a detached breakwater is under construction. A large area on the SE side of the S basin is being reclaimed.

The port has berthing space for vessels up to 15,000 grt, with up to 10.1m alongside. An area, marked by buoys to the W of Kono Shima, has been dredged to a depth of 7.3m.

Aspect.—Kono Shima, on the E side of the harbor, is long and narrow in an NE and SW direction. Two large chimneys in the central part of the inner harbor are the most conspicuous marks.

Matsu Yama, 128m high on the N side of the harbor, is very conspicuous.

Inoura Ko (33˚50'N., 130˚59'E.) is a small harbor located about 3.5 miles N of Kanada Ko. The harbor is protected on its SE side by a breakwater and on its NE side by reclaimed land. A light is shown from the head of the breakwater.

There are some red cliffs on the W side of the harbor, which are conspicuous from E.

A basin, in which there is a wharf with a depth of about 5.2m alongside, lies between two reclaimed areas, 1.25 miles N of the head of Inoura Ko Breakwater. The basin is approached by a buoyed channel, dredged to a depth of 6.1m. There is a pier, with a depth of 6.1m alongside its head, N of the entrance to the basin, and is approached from the S by a narrow channel.

He Saki lies on the S side of the E end of Kanmon Kaikyo, about 6 miles N of Inoura Ko. A light is shown from the point. A signal station stands close by the light and transmits information on traffic, tidal current, and berthing. Vessels can communicate with the station by day or night.

Kanmon Kaikyo

11.14 Kanmon Kaikyo is the channel which forms the W entrance to the Naikai. The straits are about 15 miles long from a position E of Mutsure Shima to a position E of He Saki. The E entrance is divided into North Channel and Middle Channel

by Nakano Su; the W entrance is divided into E and W channels by Mutsure Shima, Uma Shima, and Kata Shima.

Depths within Kanmon Channel are generally over 10.1m, except for Kamatokono Se, with a depth of 6.7m, and several other depths of 8.2 to 9.5m.

Kanmon Kaikyo is narrow and winding, with a navigable width in the wide places of 1 mile, and no more than 0.25 mile in the narrowest part.

Caution is necessary because of strong tidal currents and extremely heavy traffic. The largest vessel to transit the straits was reported to be of 92,112 grt, 340m long, and a deep draft of 9.5m. A draft of 9.2m can transit the straits at any stage of the tide.

Small or medium size vessels should enter the strait during daytime and about 1 hour before the tidal current in Hayatomo Seto turns from an adverse current to a following one. When it is SW in Hayatomo Seto, an eastbound vessel should be in the vicinity of Nakano Su, and a westbound vessel should be near Fukuura Wan. Passage through the strait between midnight and dawn is not recommended, as the W side is sometimes enveloped in thick fog or mist.

A vessel should, if possible, avoid transiting the strait or entering or departing harbors on either side of the strait with a following tidal current, but if this is unavoidable vessels should not do so when the tidal current is running at full strength.

It is not safe for large vessels to transit the strait with any appreciable following current, or at SW when numerous local craft encumber the fairways.

Large vessels with sufficient power should pass through Hayatomo Seto with an adverse current of more than 2 knots and less than 4 knots; about 3.5 knots is reported to be advantageous, as by this time the possibility of meeting any ocean-going vessels proceeding in the opposite direction will be at a minimum. When a current exceeding 4 knots is running, the strait should not be attempted as strong eddies may cause a dangerous shear.

Vessels passing though the strait are instructed to navigate at speeds of 10 to 12 knots, increasing to 15 knots through Hayatomo Seto narrows, about 1 mile either side of Moji Saki. If salvage operations are in progress, it will be necessary to reduce speed to about 5 knots.

Winds—Weather.—The wind direction in the strait is influenced by the topography, but throughout the year E winds are the most frequent, followed by ENE, and WNW, in that order. During the night, there is generally an E wind until about 0900, thereafter, it blows from the W. In fair weather this phenomenon, constituting the land and sea breezes, occurs with regularity.

Fog is most frequent in the strait from early spring to July or the end of the rainy season. The fog develops mainly at sunrise when the wind is light and disperses as the sun ascends higher. Fog rarely occurs when the speed of the wind is over 10 knots.

When the winds are E to S, the smoke from the various factories on the Kyushu side covers the interior of the strait, particularly in the western part. On some rare occasions it may extend as far as **Futadi-jima** (34˚06'N., 130˚48'E.), which lies NNW of the W entrance of the strait. However, as soon as the wind shifts to the W, the smoke clears and the visibility becomes good.

Tides—Currents.—The maximum velocities obtained in the straits can reach 13 knots. The current is weakest at about midway between HW and low water.

Tidal signal stations within the straits are situated at Daiba Hana, He Saki, and from a position on the NW shore of Kanamon Kaikyo, about 685m NE of the Kanmon Bridge.

Tidal current signals are displayed from an electric sign board mounted on a quadrangular metal framework structure; they indicate the direction, rate, and expected change of rate of the tidal current in Hayatomo Seto.

The signals consist of symbols, as follows:

1. The letter E or W, indicating the direction of the current.
2. A digit A digit or digits, from 0 to 13, indicating the rate of the current in knots. The digits symbol is omitted if the rate cannot be measured.
3. An arrow pointing up or down, indicating that the rate of the tidal current is expected to increase or decrease, respectively.

The symbols are white and are flashed in succession continuously.

Pilotage.—Pilotage for vessels of 10,000 grt or over passing through Kanmon Kaikyo is compulsory; pilotage is recommended for all vessels without local knowledge.

Pilotage is compulsory in harbor areas such as Kanmon Ko.

Pilots board, as follows:

1. West Entrance.—Vessels with a draft of more than 14m or with a length of over 250m board the pilot 1.5 miles N of **Mutsure Shima Light** (33 58'N., 130 52'E.). Other vessels board the pilot 1 mile NNE of the same light.
2. East Entrance.—Vessels board pilots approximately 1.3 miles SE of He Saki Light.

Regulations.—A VTS in Kanmon Kaikyo provides traffic control and information about vessels entering, departing, and navigating within the strait.

The following are extracts from Port Regulations Law, Section V, for vessels in Kanmon Ko:

Article 42.—Vessels of more than 500 grt (300 grt for Wakamatsu Quarter) will use two anchors when anchoring in the Port of Kanmon. Section 5 of Wakamatsu Quarter, with the exception of Tobata Anchorage, is exempt from this requirement.

Article 44.—

1. Vessels proceeding W through Kanmon Kaikyo from the E must enter Yayatomo Seto N of a line joining Moji Saki Lighted Buoy and the highest peak on Manju Shima before reaching a line joining Hino Yama with Tobigasu Hama. Vessels proceeding E through Hayatomo Seto must take a course passing N of a line joining Moji Saki Light and the S tip of Ganryu Shima before reaching a line joining Shimonoseki range light and the summit of Sankaku Yama. Vessels of less than 100 grt are exempt from this rule. They may sail as close to Moji Saki as possible and when sailing as such, the vessels when meeting opposing vessels shall pass starboard to starboard when the current is running E and port to port when the current is running W.

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2. Large vessels sailing E through Hayatomo Seto must keep vessels of 100 grt to starboard and when sailing W to port

3. Vessels sailing through Hayatomo Seto against the current must maintain a speed of at least 3 knots in excess of the speed of the current.

4. Vessels sailing through Hayatomo Seto are to sound three long blasts on the whistle or siren as the occasion demands from the time a position 0.5 mile from Moji Saki is reached until the vessel has passed Moji Saki.

5. Vessels proceeding in Kanmon Passage may overtake other vessels where there is adequate sea room to safely pass. When one vessel intends to overtake another vessel along its starboard side, it is to sound one long blast, followed by one short blast, on the whistle or siren, and when it intends to overtake along the other vessels port side, it is to sound one long blast, followed by two short blasts.

6. In Wakamatsu Passage, vessels of above 500 grt will proceed near the middle of the channel while vessels of less than 500 grt will proceed on the starboard side of larger vessels.

7. The whole area of Kanmon Passage has been designated a restricted area. When visibility falls to 1,000m or less "precaution against poor visibility" will be ordered. Vessels navigating in the restricted area are advised to navigate with great caution and maintain a good lookout. When visibility falls to 500m or less "requisition to avoid entering the passage" will be ordered. Vessels intending to transit the restricted area are prohibited from entering and should wait until restrictions are lifted. Vessels underway in the restricted area when the order is made should navigate with great caution or wait in a suitable area outside the fairway informing "KANMON MARTIS" on VHF channel 16.

Restrictions will be ordered either by KANMON MARTIS, MOJI SEA PATROL RADIO/JNR, or patrol craft stationed in the area.

Article 46—Part 1.—Vessels which intend to swing ship on the anchor will display in a prominent place a blackball or shape by day and a red light at night, in addition to the other standard lights prescribed by International Rules for Preventing Collisions at Sea.

Article 46—Part 2.—Vessels of over 300 grt intending to depart Wakamatsu Quarter and vessels over 500 grt intending to depart through Seitetsu Tobata Hakuchi are to sound two long blasts on the whistle or siren and by dayhoist the International Flag Signal for getting underway, and by night hoist two white lights in a vertical line, 30 minutes before getting underway.

Article 48.—Vessels sailing to and from the port of Kanmon Ko will, between Mutsure Shima on the W side and He Saki on the E side, display on the foremast or at another conspicuous place the International Flags in accordance with the table below to indicate their destinations:

1. Proceeding to E entrance of Kanmon Kaikyo—Flag E below first repeater.

2. Proceeding to W entrance of Kanmon Kaikyo—Flag W below first repeater.

3. Proceeding to Moji Quarter, port of Kanmon Ko—Flag M below first repeater.

4. Proceeding to Shimonoseki Quarter, port of Kanmon Ko—Flag S below first repeater.

5. Proceeding to Tanoura Quarter, port of Kanmon Ko—Flag T below first repeater.

6. Proceeding to Kokura Quarter, port of Kanmon Ko—Flag K below first repeater.

7. Proceeding to Nishiyama Quarter, port of Kanmon Ko—Flag N below first repeater.

8. Proceeding to Wakamatsu Quarter, port of Kanmon Ko—Flag Y below first repeater.

9. Proceeding through port of Kanmon Ko—Flag K over flag P over flag K.

Caution.—Numerous dangers and hazards exist in Kanmon Kaikyo, and great caution must be exercised during the transit of the strait. The vast majority of the accidents and disasters within this area are caused by violations of the rules, with most of these occurring near the entrance of Wakamatsu Ko, in O Seto, and in Hayatomo Seto.

When passing E of Mutsure Shima in the W approach, a large number of vessels may be found anchored here. These vessels may be waiting the turn of the tidal current, in quarantine, or weather bound.

When in the vicinity of Daiba Hana, a lookout must be kept for vessels leaving Wakamatsu Ko.

When rounding the S end of Hiro Shima in O Seto, which is a blind corner, special care must be exercised. The many accidents which occur here are mainly due to the frequent changes of course that have to be made, to the fact that vessels approaching one another are on converging courses, to the short cuts taken by small vessels making it impossible to pass port to port, and to the large number of sailing vessels and vessels in tow that are sometimes encountered. This latter case is especially so in the vicinity of the approach to Wakamatsu Ko.

In the vicinity of Shimonoseki and Moji, a lookout must be kept because of the numerous ferryboats, sailboats, and vessels turning into the above harbors.

In Hayatomo Seto, the narrowest and most congested part of Kanmon Kaikyo, every effort should be made to keep in the main current, and try not to meet other vessels here. There are numerous fishing boats to the E of Hayatomo Seto and in the vicinity of O Seto. Alterations of course to the right or left by large vessels in order to avoid them is dangerous and it is better to reduce speed and arouse their attention by sounding the whistle.

In Kita Suido, eastbound vessels must exercise caution when crossing the track of westbound vessels entering the main fairway from Chuo Suido. Care must also be used because of the tidal currents at the E end of Kita Suido, where there is a large change of course.

Kanmon Kaikyo—West Approach

11.15 Shira Shima (34˚00'N., 130˚44'E.) consists of two islets, O Shima and Me Shima, and lies about 7 miles NW of the W entrance of Kanmon Kaikyo. O Shima has a high cliff on its N side and is the larger of the two islets. The NW extremity of Me Shima is a steep-to precipitous cliff.

An oil storage facility and harbor have been constructed on the E side of O Shima. A T-head pier extends NE from the center of the N side of the new harbor.

Depths of less than 4m extend about 0.5 mile S from O Shima; a shoal with a least depth of 2.1m extends about 1.5 miles SSE of Me Shima.

Aino Shima, located about 4 miles ESE of Shira Shima, is a low, flat, densely-wooded island. Two small islets lie on the reef extending from the N end of the island; one small islet lies on the reef extending from the S end of the island. A light is shown from the SW side of the island.

Koshiki Iwa (33˚59'N., 130˚50'E.) is a small square rock, 4m high, located about 0.6 mile ENE of the S end of Aino Shima. Shoal banks extend about 0.5 mile to the NW and about 0.2 mile to the S of the rock. A lighted buoy is moored 0.3 mile E of Koshiki Iwa.

Omoji Iwa lies about 0.5 mile N of Aino Shima, and shows a light. Hiro Iwa, 0.6m high, lies on a shoal about 0.4 mile WSW of Omoji Iwa.

Shira Su (33˚59'N., 130˚48'E.) lies in the middle of a sand and gravel bank located about 1.5 miles SW of the NW extremity of Aino Shima. A light is shown from the middle of the bank. The channel between Shira Su and Aino Shima could not be attempted without local knowledge.

11.16 Mutsure Shima (33˚58'N., 130˚52'E.) (World Port Index No. 62065), a flat-topped island, showing a light from the NE extremity, is located about 2 miles SE of Aino Shima. There is a tanker berth on the SE side of the island, consisting of dolphins and a mooring buoy, with depths of up to 18m.

Tankers up to 260m long, with a draft of 15.5m, can be accepted. Vessels berth heading either N or S. Pilotage is compulsory for berthing.

Two quarantine anchorages lie E of Mutsure Shima. Vessels anchoring temporarily should anchor, in about 11.9m, sand and mud, E of the fairway, where the pilot normally comes on board.

Ko-mutsure is a group of islets which lies about 0.5 mile off the SW side of Mutsure Shima. They include Uma Shima, the largest islet; Kata Shima, with the remains of a lighthouse; and Wagora Shima, marked by a lighted buoy off its S end.

Honshu Coast

11.17 Murasaki Hana (34˚02'N., 130˚55'E.) is a low headland located about 3.25 miles NNE of the N extremity of Mutsure Shima. The point projects to the SW and is covered with an abundance of pine trees. A light is shown from the head of a breakwater on the E side of the point.

Kuro Saki is a flat headland of steep cliffs located about 2.5 miles NE of Mutsure Shima light. The point is conspicuous because of the low cultivated land which lies on its N side. The coast S of Ko Seto, a distance of 2.5 miles, is foul for about 0.4 mile offshore. In a compound of a railroad station about 1.5 miles SE of Kuro Saki, is a gray tower on which are bright, powerful lights. These lights are very conspicuous and make a good landmark for vessels approaching Kanmon Kaikyo from the W.

Ko Seto (33˚57'N., 130˚55'E.), a shallow tortuous channel, about 0.1 mile wide, separates Hiko Shima from the mainland, and is located about 2.5 miles S of Kuro Saki. Its E end has been diverted by reclamation works, and there is access to the harbor of Shimonoseki through a lock and dredged channel of 4.9m.

An overhead power cable, with a vertical clearance of 42m, spans Ko Seto nearly 0.5 mile from the W entrance. A light is shown on the S side of the W entrance to Ko Seto.

Daiba Hana (33˚57'N., 130˚53'E.) lies on the E side of the W entrance of Kanmon Ko, about 1.5 miles W of Ko Seto. It is part of the SW extremity of Takenoko-jima and the site of a tidal signal station.

Kanmon Ko

11.18 Kanmon Ko (33˚55'N., 130˚56'E.), occupying the major part of Kanmon Kaikyo, is a specified port, a port of entry, and a quarantine inspection port. It is divided into the districts of Wakamatsu Ko, Moji Ko, Shimonoseki Ko, Kokura Ko, Nishiyama Ko, and Tanoura Ko. The urban area on the S side of Kanmon Kaikyo is now known as **Kitakyushu Port** (33˚55'N., 130˚56'E.), one of the nation's largest industrial complexes.

Regulations.—General regulations prescribed by the Port Regulations Law apply. Additionally, except with the permission of the Port Captain, vessels may not approach within 30m of a tanker loading inflammable materials, nor within 50m of a tanker loaded with LNG.

Wakamatsu Ko (33˚54'N., 130˚49'E.)

World Port Index No. 62120

11.19 Wakamatsu Ko lies on the S side of the W entrance of Kanmon Kaikyo, and consists of the cities of Wakamatsu-Ku, Tobata-Ku, and Yahata-Ku. The whole area is under a combined harbor authority and is called Dokai Ko.

Winds—Weather.—The E wind is most frequent in summer and seas are moderate. In the winter, the NW wind dominates, occasionally accompanied by heavy swells.

During or after strong NW winds, deep-draft vessels must make allowances for the heavy swells when approaching the head of the breakwater or when anchoring in the outer harbor. The entrance across the bar, which is difficult, may be dangerous at this time. The swell does not, as a rule, reach the main or inner harbor.

Tides—Currents.—During the ebb tide, the tidal current sets off the inner harbor along the breakwater, and then curves toward Kanmon Kaikyo. In the main and outer harbors, the velocity does not appear to exceed 1 knot. During the flood, the tidal current sets in the opposite direction and is somewhat weaker, attaining a velocity of 0.75 knot in the outer harbor. In the vicinity off the N extremity of the breakwater, a current setting NW is sometimes experienced during the flood.

Depths—Limitations.—The Wakamatsu Passage, which branches off from Kanmon Kaikyo, has depths of 7 to 10m; the Tobata Pass, which branches off from Wakamatsu Passage and runs to Seitetsu Tobata Hakuchi, has depths of 7 to 10m. The Okudokai Passage, which branches off the Wakamatsu Passage and runs to the inner end of Dokai Wan, has depthsof 8 to 10m; and the Anse Passage, which runs from the W entrance to Kanmon Kaikyo to the Anse Hakuchi, has a depth of 12.8m.

The port consists of a number of alongside berthing facilities and dolphin moorings. There is also a large number of mooring

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buoys for use by both large and small vessels. The deepest alongside berths are found in Seitetsu Tobata Hakuchi, with depths of 10.1 to 17.1m alongside. Most mooring berths have no limit on grt capacity.

There is a new container terminal being constructed along the N coast of Wakamatsu. The new **Hibiki Port** (33˚56'N., 130˚48'E.) will consist of the Hibiki Container Terminal in which Phase 1 is scheduled to open in 2003. The first phase includes the entrance fairway, which has a planned depth of 16m, and the turning basin, which will have a depth of 15m. There will also be a container terminal with four berths. Two berths on the N side will have a total length of 700m, with an alongside depth of 15m; two berths on the E side will have a total length of 500m and an alongside depth of 10m.

Phase 2, which has no completion date yet, will add a total of eight more container berths. Four of these will add 1,400m of quayage, and will have depths of 15 to 16m alongside. The other four will add 1,000m of quayage and have an alongside depth of 12m.

Pilotage.—Pilotage for the above areas is compulsory. Pilots will board vessels in the quarantine anchorages about 0.5 mile E of Mutsure Shima and about 1 mile SE of He Saki, respectively. Pilots can be contacted on VHF channels 16 and 12. Berthing is allowed only during daylight hours. Pilots are not available after sunset.

Regulations.—In addition to the regulations for vessels in Kanmon Ko, there are local regulations which are also in force. The following regulations apply to Wakamatsu Ko:

1. Vessels under way in Kanmon Kaikyo have right of way over vessels leaving Wakamatsu and An Se Passages.
2. Vessels over 100 grt are to sound three long blasts occasionally while proceeding off Wakamatsu Breakwater Signal Station to their berths and on their way out.
3. No vessel is to anchor, stop, or otherwise obstruct the passage.
4. Vessels at buoys are to secure bow and stern, or if they secure the stern only they are also to moor.
5. A vessel crossing a fairway is to give way to one proceeding along it. Vessels are not to proceed abreast or to overtake in a fairway.

The Wakato Ohashi Suspension Bridge restricts a vessel's air draft to 42m in the center of the fairway.

Traffic Signals for Wakamatsu Passage and Okudokai Passage

Signal	Meaning
Flashing letter I	All inbound vessels and outbound vessels of less than 300 grt may proceed. Outbound vessels of more than 300 grt stop and wait.
Flashing letter O	All outbound vessels and inbound vessels of less than 300 grt may proceed. Inbound vessels of more than 300 grt wait outside the entrance and clear of the fairway, keeping out of the way of outbound vessels. Vessels of more than 300 grt moving between berths in Area No. 1 and Area 2 stop and wait.
Flashing letter F	Inbound and outbound vessels of less than 500 grt may proceed. Inbound vessels of more than 500 grt wait outside the entrance and clear of the fairway, keeping out of the way of outbound vessels. Outbound vessels of more than 500 grt stop and wait.
Letters X and I, X and O, or X and F flashing alternately	Inbound and outbound vessels of less than 300 grt navigating in the fairway may proceed. Inbound vessels of more than 300 grt outside the fairway wait outside the entrance and clear of the fairway, keeping out of the way of outbound vessels in the fairway. Vessels intending to get under way outbound wait. Signal will soon change to flashing letter I, O or F.
Letters I and Y flashing alternately	Inbound vessels may proceed, except that vessels of more than 300 grt proceeding to a berth in Area No. 2 S of a line drawn 288.5˚ from Maki Yama Signal Station, wait clear of the fairway NE of a line drawn 315˚ from the signal station, keeping clear of vessels moving from Area No. 2 to Area No. 1. Outbound vessels of less than 300 grt may proceed. Outbound vessels of more than 300 grt stop and wait, except that vessels proceeding from a berth in Area No. 2 S of a line drawn 288.5˚ from Maki Yama Signal Station to Area No. 1 may proceed.
Letters O and K flashing alternately	Outbound vessels may proceed, except that vessels of more than 300 grt intending to proceed outward from a berth in Area No. 2 S of a line drawn 288.5˚ from Maki Yama Signal Station, stop and wait. Inbound vessels of less than 300 grt may proceed. Inbound vessels of more than 300 grt wait outside the entrance and clear of the fairway, keeping out of the way of vessels in the fairway. Vessels moving from Area No. 1 to a berth in Area No. 2 S of a line drawn 288.5˚ from Maki Yama Signal Station, may proceed.

Return to paragraph: 11.20

Traffic Signals for Wakamatsu Passage and Okudokai Passage	
Signal	**Meaning**
Flashing letter X	Inbound and outbound vessels navigating in the fairway may proceed. Inbound vessels outside the fairway wait outside the entrance and clear of the fairway, keeping out of the way of outbound vessels in the fairway. Vessels intending to get under way outbound wait. Signal will soon change to fixed letter X.
Fixed letter X	All movements are prohibited except for a vessel instructed by the Captain of the Port.

Berthing and unberthing operations are controlled by the Harbormaster; movements are dependent upon daylight, vessel size, tidal conditions, and wind conditions.

Signals.—Traffic signals regulating passage in the Wakamatsu Passage and Okudokai Passage are shown from **Wakmatsu Signal Station** (33˚56'N., 130˚51'E.), **Maki Yama** (33˚53'N., 130˚49'E.), and **Hutazima Signal Stations** (33˚53'N., 130˚47'E.). The signals and their meanings are given in the accompanying table above.

Traffic signals consisting of flashing lights are also shown from **Tobata Signal Station** (33˚55.2'N., 130˚51.8'E.), on the N entrance point to Seitetsu-Tobata Hakuchi Basin, to control traffic in Tobata Passage. The signals are as follows:

Traffic Signals from Tobata Signal Station	
Signal	**Meaning**
Flashing White	Inbound vessel may enter. Outbound vessels of 500 grt or more are prohibited from departing. Outbound vessels of less than 500 grt may depart.
Flashing Red	Outbound vessels may depart. Inbound vessels of 500 grt or more are prohibited from entry. Inbound vessels of less than 500 grt may enter.
Alternating Flashing Red and White	Vessels of 1,000 grt or more are prohibited from entry and departure.
Alternating Group Flashing of Red and White	All vessels without special instructions from the Captain of the Port are prohibited from entry or departure.

Anchorage.—There are quarantine anchorages on the SE side of He Saki and to the E of Mutsure Shima. The dangerous cargo anchorage is an area as specified by the harbormaster in the Area No. 5. Anchorage for vessels under 300 grt is in Area No. 2 and Area No. 3, and all of Area No. 6 anchorages are designated by the harbormaster. Vessels are not permitted to anchor in the main or inner harbors without special permission.

Caution.—Vessels bound for Wakamatsu Ko from the W should pass S of Funa Se, and those from the E should pass N of Kasa Se. Eastbound vessels leaving the harbor should alter course SE into the main fairway as soon as possible if sighting a vessel approaching from Moji Ko. This is necessary in order that the two vessels may pass port to port. Extra caution is necessary in the fairways because of the heavy traffic.

Kobura Ko (33˚53'N., 130˚54'E.)

World Port Index No. 62130

11.20 The port of Kokura Ko consists of all the wharf basins between the dredged channel leading to Sakaikawa Wharf and the Alasaka Wharf located about 2.5 miles SE.

The deep-draft facilities are in Sunatu Hakuchi Basin and on the W side of the approach to the basin 0.5 mile farther W. These facilities are approached via Sunatu Passage. The facilities on either side of the reclaimed land in the NW part of the port are approached via separate channels; Hiagari Basin is the SE of the latter two.

Winds—Weather.—During winter months, the strong Northwest Monsoon makes it almost impossible for small vessels in Sunatu Hakuchi to handle cargo.

Tides—Currents.—The current in Sunatu Passage reaches a maximum of 3 to 4 knots at times.

Depths—Limitations.—The Sunatsu Passage, which branches off from Kanmon Kaikyo, has depths of 8 to 10.1m, and is marked by lighted buoys. The fairway leading to Hiagari Basin has depths of 10.1 to 11.9m and is also marked by lighted buoys.

Depths alongside the berths at Hiagari Wharf range from 5.5 to 12m at Berth No. 7. Berth No. 7 can accommodate vessels up to 22,000 grt. All other berths can accommodate up to 14,000 grt. In Sunatsu Hakuchi, the deepest depth alongside is 9m.

Pilotage.—Pilotage for Kokura Ko is compulsory and is obtained as stated for Kanmon Ko in paragraph 11.19. The pilots can be contacted on VHF channel 16.

Anchorage.—Kokura Ku anchorage area was being dredged to form a navigation fairway.

Nishiyama Ko (33˚56'N., 130˚54'E.) lies between the W extremity of Hiko Shima and Kabutoyama Misaki, on the SW side of Hiko Shima. The town of Nishiyama stands at the head of the harbor, which consists of a docking basin with depths of 4 to 4.9m. There is a pier, with a depth of 12.5m alongside, close W of the basin entrance. Two piers project from reclaimed land close SE of the basin.

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Kitakyushu—Kokura Wharf (Hiagari Wharf)

Kitakyushu—Tanoura Wharf

Kitakyushu—Tachinoura Wharf

Kitakyushu—Hibiki Container Terminal (Future)

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Berthing signals are displayed at the port signal station, as follows:

Signal	Meaning
N3	Moor to Nisiyama Wharf, Quay 3
N4	Moor to Nisiyama Wharf, Quay 4

In each case, the vessel should acknowledge the berthing signal by a flag hoist of 2nd Substitute over N3 or N4, as appropriate.

A light is shown at the W entrance point of the basin. A red light is shown at the head of Nishiyama Ku Breakwater.

Fukuura Wan, about 1.3 miles SSE of Nishiyama, is entered S of Kabutoyama Misaki. The town of Fukuura stands on the NW shore on this inlet. A breakwater extends S from the S end of Kabutoyama Misaki, and a short detached breakwater protects a timber storage area.

In the outer part of the bay, between the entrance and the detached breakwater protecting the timber storage area, there are depths of 7.3 to 7.6m; elsewhere, depths are less than 3.4m.

Moji Ko (33˚57'N., 130˚57'E.)

World Port Index No. 62140

11.21 Moji Ko is on the Kyushu side of the E part of Kanmon Ko, opposite Shimonoseki Ko. Tanoura Ko, which extends about 1.8 miles E from Moji Saki, is included within this port.

Winds—Weather.—Throughout the year, the wind blows most frequently from the E, followed by ENE, and then WNW, in that order. Dense fog frequently prevails in spring and autumn. On occasions, there may be smog persisting for part of the day, due to the many factories and chemical plants in the area.

Tides—Currents.—Currents near the entrance of the port set W at flood and E at the ebb. The current in the vicinity of the narrowest section of the straits will at times reach a rate of 7 to 8 knots. Close off the port, the current is about 1 to 3 knots.

Depths—Limitations.—There are a number of berths that can moor vessels in the 10,000 grt class simultaneously, in depths from 8 to 10.1m at Foreign Trade Quays (Berth No. 1 to Berth No. 7). Kuzuha Quay (Berth No. 8 to Berth No.10) has a depth of 11m, with a 13,000 ton capacity. Shinhama Wharf (Berth No. 11 to Berth No. 13), has depths of 9 to 11m, with a 13,000 ton capacity.

Kanmon Bridge, crossing the NE entrance to Kanmon Passage, allows for a maximum air draft of 63m.

Pilotage.—Pilotage is compulsory for vessels at Moji Ko. Vessels 200m loa and greater and LNG/LPG vessels 25,000 gt and greater, board pilots in position 33˚14'N, 132˚06'E when entering through Bungo Suido. For general cargo vessels entering Bungo Suido, pilotsboard in position 33˚13'N, 131˚58'E. Vessels may enter or leave the port area 24 hours, but docking and undocking at night is at the discretion of the pilot. The pilots can be contacted on VHF channel 16.

Signals.—Berthing signals, using the special flags displayed at Moji Signal Station at the NE end of Foreign Trade Quays, are, as follows:

Signal	Meaning
MA	Anchor S of Kajiga Hana

Flag signals assigning an alongside berth comprise the Berthing Flag above the berth number.

In every case, the ship should acknowledge the berthing signal with a flag hoist substituting the Answering Pennant for the Designation or Berth Flag.

Anchorage.—The anchorage off Moji Ko provides good holding ground for large vessels.

When there are vessels berthed at Pier No. 1 and Pier No. 2 , it is prohibited to anchor in the area E of Mooring Buoy No. 9. When there are no ships berthed at the piers, temporary anchorage is permitted, provided the vessel is leaving the same day.

Caution.—When entering, leaving, or shifting berth in Moji Ko, special care is necessary because the tidal currents are very complex, especially during the W current, when eddies are formed in the harbor.

Vessels anchoring and turning must avoid remaining longer than necessary in the fairway near Ganryu Shima.

After anchoring, cross bearings marking the position must be communicated to the harbor office.

Vessels must try to avoid entering or leaving the harbor during the middle period of the tidal current.

Vessels anchored near the harbor limits must not show any light that might interfere with the safe navigation of other vessels.

No vessel may have more than two lighters secured alongside or astern simultaneously.

Shimonoseki Ko (33˚56'N., 130˚56'E.)

World Port Index No. 61700

11.22 Shimonoseki Ko lies on the N side of Kanmon Kaikyo Passage, between Kanenoturu Misaki and the E limits of Kanmon Ko, about 5.5 miles NNE. The SW part of Shimonoseki Ko is mostly shoal and on it lies Ganryu Shima.

Winds—Weather.—Throughout the year, the wind direction is mostly from the ENE, followed by E winds, and then WNW, in that order.

Tides—Currents.—Between Hiko Shima and Ganryu Shima, the N current flows at the same time as the E current in Hayatoma Seto and the S current at the same time as the W current in Hayatomo Seto. The velocity in its center is almost half that in Hayatomo Seto. When these currents meet the main currents through the strait, whether N or S of Ganryu Shima, the countercurrents causes eddies.

Depths—Limitations.—The harbor consists of a number of berths for vessels in the 10,000 grt class, with depths of up to 9.2m alongside. The minimum depth in the entrance channel is 10m.

Hananocho Wharf has two deep-water berths for vessels up to 15,000 grt, with a depth of 10.1m alongside.

Pilotage.—Pilotage is compulsory. Pilots board at Mutsure Anchorage or Hesaki Anchorage. Via Kitakyushu Port Radio, VHF channel 16 is used for calling, VHF channels 12 and 14 are the working frequencies, and VHF channel 13 is used for the pilots. Port entry is restricted to daylight hours only.

Signals.—Storm signals and local weather signals are displayed at the conspicuous meteorological station on the hill about 1.3 miles NNE of Ganryu Shima.

Anchorage.—Anchorage can be obtained in the harbor, but caution must be exercised because of the high velocity of the current and poor holding ground.

Kanmon Kaikyo—East Approach

11.23 He Saki (33˚57'N., 131˚02'E.) is the S entrance point of the E entrance to Kanmon Kaikyo. Pilotage is not compulsory for vessels transiting Kanmon Kaikyo, but are recommended for vessels without local knowledge. The pilot will board vessels off He Saki, and at the quarantine anchorage, close SE of He Saki.

Nakano Su is a large sandbank, about 1 mile in length and better than 0.25 mile wide, lying in the middle of the E entrance to Kanmon Kaikyo. The bank is marked by a number of lighted buoys. Vessels entering or leaving Kanmon Kaikyo may pass either N or S of Nakano Su, using the standard courses shown on the charts.

Manju Shima (Manzyu Shima) (34˚00'N., 131˚02'E.), an islet, lies on the N side of the E entrance to Kanmon Kaikyo, about 1 mile N of Nakano Su. A breakwater extends 870m NNE from a position 0.3 mile WNW of the W extremity of the islet. A light is shown from the S side of Manju Shima.

Kanju Shima (Kanzyu Shima), a thickly-wooded islet, lies about 1 mile W of Manju Shima. A shoal bank, on which lie several above-water rocks, extends about 0.2 mile S and SE from Kanju Shima. Numerous fish havens lie on the edge of the coastal bank SE of Kanju Shima.

North Channel, with a least depth of 10.4m, marks the N side of Nakano Su.

Shoal patches, with a least depth of 10.1m, have been reported close N of North Channel, 0.4 mile SSE of Kushi Saki.

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